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Claims:

1. An integrated silicon electrode for a battery, comprising a regular or irregular array of sub-micron silicon structures fabricated on a silicon substrate.
- 5 2. A silicon anode comprising an electrode according to claim 1, in which the sub-micron silicon structures comprise pillars of silicon fabricated on an n-type silicon substrate.
3. A silicon anode according to claim 2 made on a wafer-
10 bonded silicon-on-insulator substrate.
4. A silicon anode according to claim 2 or claim 3 in which the silicon pillars do not exceed a fractional coverage of 0.5 of the substrate.
5. A silicon electrode according to any one of the preceding
15 claims formed by the steps of:
 - (a) depositing a very thin film of a highly soluble solid onto a flat hydrophilic silicon substrate;
 - (b) exposing the film to solvent vapour under controlled conditions so that the film reorganises into an
20 array of discrete hemispherical islands on the surface; and
 - (c) reactively ion etching the silicon substrate with the islands of highly soluble solid acting as a resist so that the exposed silicon is etched away leaving pillars corresponding to the islands.

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6. A silicon anode according to any one of the preceding claims wherein the pillars are 0.1-1.0 microns in diameter (d) and 1-10 micron in height (H).
7. A silicon anode according to any one of the preceding
5 claims wherein the pillars are ~0.3 microns in diameter (d) and 6 microns in height (H).
8. A lithium battery including an anode in accordance with any one of the preceding claims.